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EXAMINER	
WATKO, JULIE ANNE	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/788,953
Filing Date: February 26, 2004
Appellant(s): CHAN ET AL.

Thomas R. Berthold
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed May 3, 2007 appealing from the Office action mailed October 12, 2006.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The grounds of rejection to be reviewed on appeal differ from Applicant's statement of grounds of rejection.

NEW GROUND(S) OF REJECTION

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Butt et al (US Pat. No. 7031104 B1) in view of Asano et al (US Pat. No. 7072140 B2).

As recited in claim 1, Butt et al show a data recording disk drive 10 comprising: a housing 22; at least one disk 34 rotatable about an axis of rotation 36; a motor 38 attached to the housing for rotating the disk; a plate (68 or 200, for example) fixed to the housing, the plate extending circumferentially around a sector of the disk and radially across a radially outer annular region of the disk, the plate having a substantially planar surface facing a disk surface,

said plate surface having a plurality of discrete surface features arranged in a pattern of radially-spaced concentric rings (see Fig. 5B). Butt et al further show surface feature concentric rings having a variety of sizes and locations (see, e.g., "channels 204 concentrated in *one or more* portions of the inner surface of the base 180" (see col. 8, lines 60-64); "plurality of arcuate channels 158 are located upstream of the actuator arm 50" (see col. 7, lines 32-33); "channels 158 are located downstream of the actuator arm 50" (see col. 7, lines 33-34); "channels 158 are located roughly midway between the upstream side of the actuator arm 50 and the downstream side of the actuator arm 50" (see col. 7, lines 35-37)).

As recited in claim 1, Butt et al do not expressly show each ring comprising a plurality of discrete circumferentially spaced-apart surface features.

Asano et al show a disk drive having airflow adjusting mechanism in which airflow "is smoothly guided and stabilized substantially into a laminar flow" such that "the effect that the vibration or the like caused by the airflow has on the storage disks 16 is suppressed very effectively" (see col. 6, lines 1-4). Asano et al teach that a continuous ridge 46 (see Fig. 3) is interchangeable with a ridge made of a plurality of discrete surface features 48 spaced apart in a direction of airflow (see Fig. 5; see also col. 6, lines 57-67, especially lines 62-63, "exhibit the above-mentioned function of rectifying the airflow"). Furthermore, by disclosing both types of surface features as alternatives, Asano et al further provide evidence that the substitution of continuous and non-continuous surface features was within the level of ordinary skill in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace each radially-spaced concentric ring of Butt et al with a plurality of discrete surface features spaced-apart in the airflow direction (circumferentially) as taught by Asano et al.

The rationale is as follows: When faced with a finite number of predictable, known solutions to the problem of non-laminar airflow, one of ordinary skill in the disk drive art would have had good reason to pursue known options within her or his technical grasp. See *KSR v. Teleflex*, 82 USPQ2d 1385, 1390 (2007). When faced with a variety of predictable, equivalent solutions to the problem of non-laminar airflow, one of ordinary skill in the disk drive art would had further reason to substitute known equivalents.

No specific teaching, suggestion, nor motivation to combine is required to establish a *prima facie* case of obviousness. See Ex parte Smith, __ USPQ 2d ____, slip op. at 20 (BPAI June 25, 2007), citing *KSR v. Teleflex*, 82 USPQ2d 1385, 1396 (SCt 2007). Rather, a specific teaching, suggestion or motivation (TSM) is merely one possible way of demonstrating obviousness.

As recited in claims 2 and 3, Butt et al show that there is only one disk ("at least one disk", see col. 3, line 6), wherein the housing includes a base 30, the motor 38 and disk 34 being mounted on the base (see Fig. 2).

As recited in claim 2, Butt et al show that the plate ("base 200 having the arcuate channels", see col. 8, lines 44-45) is part of the base 200 and said plate surface faces the bottom ("lower", see col. 3, line 67) surface of the disk.

As recited in claim 3, Butt et al show that the plate ("cover 68 having the arcuate channels", see col. 8, lines 43-44) is part of the cover 68 and said plate surface faces the top ("upper", see col. 6, line 66) surface of the disk.

Claims 4-5, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Butt et al (US Pat. No. 7031104 B1) in view of Asano et al (US Pat. No. 7072140 B2) as applied to claims 1-3 above, and further in view of Machcha et al (US Pat. No. 6882501 B2)

Butt et al show a drive as described above for claims 1-3.

As recited in claim 4, Butt et al show a data recording disk drive 10 comprising: a housing 22; a rotatable stack of disks 34 axially spaced along a common axis of rotation 36; a motor 38 attached to the housing 22 for rotating the disk stack; a plate (68 or 200, for example) fixed to the housing, the plate extending circumferentially around a sector of the two disks and radially across a radially outer annular region of the two disks, the plate having a substantially planar first surface facing a surface of a first disk, said first plate surface having a plurality of discrete surface features arranged in a pattern of radially-spaced concentric rings.

As recited in claim 4, Butt et al are silent regarding each ring comprising a plurality of discrete circumferentially spaced-apart surface features.

See teachings and rationale above for claim 1.

As recited in claim 4, Butt et al are further silent regarding the plate being located between two axially adjacent disks, and a substantially planar second surface facing a surface of the second disk, said second first plate surface having a plurality of discrete surface features arranged in a pattern of radially-spaced concentric rings.

As recited in claim 4, Machcha et al show a plate 720 having a substantially planar first surface facing a surface of a first disk, and a substantially planar second surface facing a surface of the second disk, said first and second plate surfaces each having surface features (see col. 7, line 19, "textured").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a plate with two surfaces between the disks of Butt et al as taught by Machcha et al, and to provide two surfaces of the additional plate with the surface features in the pattern taught by Butt et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to add a plate with two surfaces having the surface features in order to reduce cross-track motion and to decrease drag losses by modifying fluid flow as taught by Machcha (see col. 4, lines 46-57; see also col. 7, lines 18-25), and in order to reduce track mis-registration even more than when only a single featured plate surface is used so as to further improve track pitch and areal density as taught by Butt et al (see col. 8, lines 42-56).

As recited in claim 5, Butt et al are silent regarding a plurality of plates, each plate being located between a different set of two axially adjacent disks.

As recited in claim 5, Machcha et al show a plurality of plates 720, each plate being located between (see Fig. 7A) a different set of two axially adjacent disks 110.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add plural plates to the drive of Butt et al as taught by Machcha et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to add plural plates in order to modify airflow between a larger number of disks, so as to increase data storage capacity while reducing cross-track motion and drag losses as taught by Machcha et al (see col. 4, lines 46-57; see also col. 7, lines 18-25).

Butt et al are silent regarding whether the surface features have the specifically claimed shapes recited in claims 10 and 12 (dimples and bumps, respectively).

There is no invention in changing the shape of known parts, when the functioning of the apparatus is not changed by the reshaping. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). Applicant has provided no evidence of unexpected results due to the claimed shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrive at the claimed shapes through the process of routine experimentation and optimization in the absence of criticality. The rationale is as follows: one of ordinary skill in the art would have been motivated to achieve a textured surface adapted to modify a fluid flow impinging on an adjacent slider assembly as taught by Machcha et al (see col. 7, lines 18-25).

(10) Response to Argument

Applicant's arguments filed May 3, 2007, have been fully considered but they are not persuasive.

On page 5, 1st full paragraph, Applicant argues that Butt et al "is in clear violation of the "strict identity" test for anticipation" insofar as the disclosed features are not "arranged as in the claim". The Examiner has considered this argument thoroughly and asserts that this argument is mooted by the new grounds of rejection. Although Butt et al teach three different circumferential locations (see col. 7, lines 32-37), and further teach the use of "channels 204 concentrated in *one or more* portions of the inner surface of the base 180" (see col. 8, lines 60-64 (emphasis added)), the Examiner has applied newly found art (Asano et al, US Pat. No. 7072140 B2) to the claims in order to enter the newly found art into the record. Because the new grounds of rejection are not presented as an anticipation rejection, Applicant's "strict identity" test argument is moot.

On page 6, 4th paragraph, Applicant argues that "the "one or more portions" referred to in Butt are *not* "circumferentially spaced-apart portions." Rather, they are *radially* spaced-apart

portions." The Examiner has considered this argument thoroughly and asserts that this argument is moot in view of the new grounds of rejection.

Asano et al show that surface features 40 can be continuous ridges/channels (see Fig. 3) oriented along an airflow direction, which are replaceable by discrete features (see Fig. 5) spaced-apart in an airflow direction. The continuous features function to create laminar airflow (see col. 6, lines 1-2, "stabilized substantially into a laminar flow"). The discrete features function in exactly the same way to create laminar airflow (see col. 6, lines 57-67, "exhibit the above-mentioned function of rectifying the airflow"). In the case of Butt et al, the airflow direction is circumferential. Applying the teaching of Asano et al to the drive of Butt et al, when the concentric rings of Butt et al are replaced by discrete, circumferentially spaced-apart surface features, it is predictable that the functioning of the rings made of discrete surface features will be the same as the rings made of continuous surface features. Specifically, concentric rings made of discrete surface features will result in laminar airflow in exactly the same way as concentric rings made of continuous surface features will result in laminar airflow.

Applicant's argument that relocation of parts is not applicable has been mooted by the new grounds of rejection.

Applicant has argued claim 4 and its dependent claims for the same reasons argued for claim 1. These arguments are non-persuasive for the reasons stated above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

This examiner's answer contains a new ground of rejection set forth in section **(9)** above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer exercise one of the following two options to avoid *sua sponte* **dismissal of the appeal** as to the claims subject to the new ground of rejection:

(1) **Reopen prosecution.** Request that prosecution be reopened before the primary examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit or other evidence. Any amendment, affidavit or other evidence must be relevant to the new grounds of rejection. A request that complies with 37 CFR 41.39(b)(1) will be entered and considered. Any request that prosecution be reopened will be treated as a request to withdraw the appeal.

(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the other requirements of 37 CFR 41.37(c). If a reply brief filed pursuant to 37 CFR 41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

Respectfully submitted,

JAW
07/31/2007

JULIE ANNE WATKO
PRIMARY EXAMINER

A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:

***

Mark R. Powell
DIRECTOR, 2600

Conferees:

***

/Hoa Nguyen/

Hoa Nguyen

SPE, AU 2627

/Dwayne Bost/

Dwayne Bost
SPE AU2626/2627